TAO GONG, Western University
Toric varieties modulo reflections

Let W be a finite group generated by reflections of a lattice M. If a lattice polytope $P \subset M \otimes_{\mathbb{Z}} \mathbb{R}$ is preserved by W, then the quotient P/W admits an embedding into P as a rational polytope. We show that the quotient of the projective toric variety X_P by W is isomorphic to the toric variety $X_{P/W}$. This answers a question of Horiguchi–Masuda–Shareshian–Song. We also study quotients of real toric varieties, proving that $X_P^{\mathbb{R}}/W$ is contractible when P is a permutohedron. This is joint work with Colin Crowley and Connor Simpson.